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REMARKS

Applicant appreciates the Examiner's thorough review and consideration of the subject application. The non-final Office Action of May 13, 2004 has been received and its contents carefully noted. Claims 1-6 are currently pending in the application. By this amendment, the specification and Figure 1 have been amended to more clearly support the claims and overcome the objections and rejections in the outstanding Office Action. No new matter has been added. Support for the specification and drawing amendments are discussed below. Reconsideration and withdrawal of all pending objections and rejections in view of the above amendments and following remarks is respectfully requested.

Objection to Drawings

In the Office Action, three drawings objections were made. The first states that the "fold axis" recited in claims 1 and 7 is not shown in the drawings. The second states that the claim limitation of "the tab reduces dimension parallel to the fold axis ..." is unclear. The third states that the drawings do not show the apparatus for forming the tube and an apparatus for simultaneously punching the tabs as described in the specification. Each of these objections has been addressed as noted below.

The first objection has been overcome by amending Figures 1 and 3 to show reference numeral "15", which denotes the fold axis that was previously shown, but not labeled, in the original figures. Reference numerals "19" and "20" also have been added to Figure 1 for clarity. Reference numeral "19" denotes the sloping or tapered shoulders of cut-out "20," formed by the punching operation (described, e.g., at page 3, lines 5-8 of the original specification and original

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claim 4). Because these features were previously shown in the original figures, but not labeled, no new matter is added.

The second objection has been overcome by the specification amendments herein, and the new blow-up of Fig. 1A, which shows that the width of tabs, e.g., w_1 and w_2 , decrease or reduce in dimension in a direction parallel to the fold axis, as one moves longitudinally, between the fold portion (i.e., fold axis 15) and the free end 21 of the tab.

The third objection is respectfully traversed because both types of apparatus are notoriously old in the art and would have been readily apparent to a person of ordinary skill in the art at the time the invention was made. Page 1, lines 9-13, of the specification discuss that it was known to form tubes by bending elongate sheets of material about a longitudinal axis. Numerous prior art references, including EP 0715 910 (Hardt) relied on by the Examiner, teach an apparatus forming a sheet into a duct and simultaneously punching and folding of tabs. A patent specification need not be a production blueprint, as it only needs to apprise skilled artisans of the novel subject matter. *See* MPEP § 2164.01 (“A patent need not teach, and preferably omits, what is well known in the art.”). Armed with Figs. 1-3 of the specification as originally filed, and the description thereof, a skilled artisan would readily understand the invention without showing these apparatus. Hence, it is not necessary for the figures to show either an apparatus for forming the tube or an apparatus for simultaneously punching the tabs.

In view of the above amendments and arguments, withdrawal of all pending drawing objections is respectfully requested.

35 U.S.C. § 112, First Paragraph, Rejection

Claims 1 and 7 stand rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the written description requirement. Specifically, the Examiner alleges that there is no support in the specification for the claimed subject matter "... such that the folded tabs cannot translate relative to each other in a direction orthogonal to the fold axis and parallel to the inner and outer overlap portions." The rejection of claim 7 has been mooted by the cancellation of this claim. The rejection of claim 1 is respectfully traversed.

Figures 1 and 3 as originally filed clearly disclose cut-out portions 20 corresponding in shape to punched tabs 18. The cut-out portions 20 have sides (or shoulders) 19 that taper inward from a wider fold portion (e.g., fold axis 15) to a narrower free end 21. It is inherent in the tapered nature of the cut-outs 20 that the tabs 18, once folded, cannot translate relative to one another in the direction defined in claim 1. That is, the engagement of the tabs 18 with the shoulders 19 fix the inner and outer overlapping portions together by preventing the folded portion from moving toward the narrow end of the cut-out 20. The claimed functionality is a direct result of the disclosed structural feature, which would have been readily apparent to a person of ordinary skill in the art. The specification has been amended, without adding any new matter, to clarify this point.

Thus, the original drawings and the specification, as amended, clearly describe and point out the tapered nature of the cut-outs, which prevents translation of the folded tabs relative to each other, as originally disclosed in the Figures and at page 3, lines 1-8. Accordingly, withdrawal of the rejection of claim 1 is respectfully requested.

35 U.S.C. § 103 Rejection

Claims 1-6

Claims 1-6 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over European Patent No. 715,910 to Hardt, *et al.* (“Hardt”) in view of U. S. Patent No. 3,824,757 issued to Coop (“Coop”) and United States Patent 518,767 to Plecker (“Plecker”). This rejection is respectfully traversed.

Noting that Hardt does not disclose either forming a tube or punching tabs that reduce in dimension parallel to the fold axis as claimed, the Examiner alleges it would have been obvious to modify the teachings of Hardt with the teachings of Coop (forming a tube from a sheet of material) and Plecker (forming V-shaped tabs) in order to reduce the difficulty in inserting the tabs into opposing apertures. *See* Office Action, paragraph 5. The Examiner further argues that such a combination would result in the claimed invention. *Id.* These statements show that the Examiner does not fully appreciate how Hardt or the claimed invention operates, and has made an improper hindsight reconstruction of the invention through piecemeal prior art teachings.

Hardt appears to be the most relevant document in that it teaches the folding of a sheet into a duct and then the simultaneous punching and folding of tabs. However, the claimed invention differs from Hardt in that the tabs of the present invention are tapered so that the two lateral edges of the tube cannot translate relative to each other when fixed together by the folded tabs. In contrast, the tabs of Hardt are rectangular in shape and therefore some longitudinal translation equal to the length of the rectangular openings forming the tabs of Hardt, is possible.

The Examiner has noted that Plecker teaches “V” and “U” shaped tabs and accordingly has combined Hardt with Plecker to arrive at the claimed invention. Notably, the Examiner

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states that it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the tabs of Hardt to reduce in dimension from the fold axis to the free ends, thereby forming “V” or “U” shaped tabs, as suggested by Plecker, in order to reduce the difficulty in inserting the tabs into opposing apertures. This underlined statement makes it clear that the Examiner has not really understood either Hardt or the present invention. In both Hardt and the present invention a sheet of material is first formed into a tube and thereafter the tabs are simultaneously punched and folded. Clearly, it is not necessary to insert the tabs into opposing apertures as no such operation occurs in either Hardt or in the present invention. Thus, the Examiner’s stated motivation of importing the feature of Plecker into Hardt is clearly without basis. Thus, the required suggestion or motivation to combine Plecker and Hardt is missing.

Moreover, even if Plecker, Coop, and Hardt were combined, they fail to disclose the invention as claimed. The resultant combination would yield a duct (Hardt) formed with a space separating its lateral edges (Coop’s Figure 11). The non-overlapped edges would be punched with V-shaped tabs (Plecker’s Figure 2). The V-shaped apertures would then be enlarged to have a rectangular shape and larger cross-dimensions than the tabs (Plecker’s specification, page 2, lines 20-33). Thereafter, the lateral edges of the duct would be overlapped, and the tabs inserted into the apertures. If the tabs are then bent much as possible to their original positions, as suggested by both Coop and Plecker, they will rotate completely through the enlarged apertures and form no seam at all. On the other hand, if the tabs are bent backward as taught by Hardt, they will translate relative to each other because the straight sides of the rectangular apertures will not engage them. Thus, no matter how the teachings of Hardt, Coop, and Plecker are combined, the resultant combination fails to disclose the invention as claimed.

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Since none of the other prior art of record discloses or suggests the claimed subject matter, Applicant respectfully submits that claim 1, and dependent claims 2-6, are allowable.

Claims 7-10


The rejection of claims 7-10 under 35 U.S.C. § 103(a) as being unpatentable over Coop in view of Plecker is moot due to the cancellation of these claims.

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CONCLUSION

In view of the foregoing amendments and remarks, Applicant submits that all of the objections and rejections have been overcome, and that the claims are patentably distinct from the prior art of record and in condition for allowance. The Examiner is respectfully requested to pass the above application to issue, and to contact the undersigned at the telephone number listed below, if needed. Applicant hereby makes a written conditional petition for extension of time, if required. Please charge any deficiencies in fees and credit any overpayment of fees to Attorney's Deposit Account No. 09-1951.

Respectfully submitted,



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